

STATINTL

To :

[redacted]

Date : January 19, 1962

Subject : Current Configurations of Pressure Suit and Parachute

The results of the meeting on January 16 thru 18 with regard to changes in the pressure suit and parachute are as follows:

Regarding the pressure suit

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1. A difference was noted between the wrist rings on [redacted] suit as compared to [redacted]. The flange type of connections on [redacted] wrist rings may be causing a slight amount of trouble when reaching for the seat ejection ring. We would like to see this flat in the same manner as on [redacted] suit. Further, this total ring assembly should be made smaller if at all possible.

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2. The neck ring on the newer helmets is 1/2 inch bigger in diameter. This is a very critical area because of interference with parachute harness and shoulder harness straps at this point. We would like to see this neck ring go back to its original diameter such as on [redacted] [redacted] suit and helmet.

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3. The helmet cable hold-down fitting is presently plastered on the outside of the neck ring. This again adds another 1/4 of an inch to the overall neck ring width just where it is important to be narrow. It appears that this fitting can be made to bolt on the bottom of the ring and thus have no extension beyond the basic diameter of the ring itself.

4. On [redacted] suit the neck ring does not match the lower side of

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the helmet ring when he has his head in a normal attitude prior to locking in place. As a result there is some constant strain on the neck when the helmet is locked up. This fit should be watched when the suit is made.

5. Helmet pressure taps stick out too far and are in a vulnerable position. Propose screwing tap in only when in use. Seal threaded holes with screws for flight.

With regard to the parachute pack and harness, the following configurations were established.

1. The connection for the drogue harness must be moved back and out-board so that the drogue fitting always clears the helmet. It has been established that it is to be located on an added outside harness webbing 1-5/8" forward of the top backpan webbing.
2. The current basic configuration of the parachute pack, oxygen pan, and the timer case are to remain unchanged. The pack is to have an overall maximum thickness of 6-3/8". We can permit no deviation to a thicker pack. Also see item 14. *OK with 10" spreader*
check with 30" "
3. Rocket-Jet disconnects are to be used in place of the Capewells.
4. The protector flap on the drogue pack is to be reversed thus making the folded end up.

check on eyelets

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5. The covering on the oxygen and timer pans is to be made or eliminated so that there is no lost space due to fabric or connection problems. Probably the best way to do this is to eliminate the cloth covering entirely over the center of the pans but to fasten it along the edge so that it can carry tension when the pack is pulled up tight.
6. The hooks on the elastic bands are to be directly connected to the metal pans. Holes in the pans are probably sufficient.
7. The drogue riser configuration is to be such that the apex occurs at the base of the drogue chute itself. The fitting at that point must be strengthened to take the drogue chute loads, probably by means of the tube over the bolt. There are to be two spreaders sewed between the drogue risers to prevent excessive slippage.
8. The T-10 risers are also to have a spreader between them in order to back up an inadvertent Rocket-Jet release. *length?*
9. As a result of these changes, a new harness is required that will permit higher loads to go down the pack webbing. This also means that a non-slip type of adjustment buckle is required on the side adjustment webbing.
10. The release and webbing are to be designed for 6000 lb. limit load as applied by the drogue chute. These loads are to be checked at El Centro on the new harness.

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11. With regard to the drogue chute release -
- a. The inner links are to be machined away per the enclosed drawing.
 - b. The center roller is to have conical ends.
 - c. The release pin is to have a thick shoulder so that the side roller is always positioned to alleviate a hang up.
 - d. All working parts are to be lubricated with solid film lube such as Lubri-Plate or Electrofilm.
 - e. A stop pin is to be incorporated on the inboard link such that there is always at least 3° of over center action available in the linkage.
 - f. The small radius is to be incorporated in the solid guide tube for the flexible cable.
 - g. At conclusion of these tests a more reliable release will be designed and incorporated at a future date.
12. The seat kit is to stay exactly as it is with no changes except for the addition of the solid parachute block at the rear end. The drawing of this block is included with this letter.
13. A flap is to be incorporated on the bottom of the parachute pack which may be clipped to the seat pack to prevent the possible jamming of parachute risers between the seat pack and the man.
14. The maximum permissible pull for an automatic actuation of the timers is about 10 lbs. A set of current production timers will be sent to Firewel on January 19 for Mockup purposes and to make the detail changes required to stay below this maximum force of 10 lbs.
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15. Flap approx. 6" long is to be sewn to the lower edge of the left wing flap. This is to snap back on the wing flap to enclose the vent hose and communications cord.
16. The tab for securing the emergency oxygen cable housing is to be moved aft 3/4".
17. The inertia reel shoulder harness buckles must be positioned behind the neck ring to eliminate the possibility of hang up on seat separation.

As a result of the above requirements, the test and parachute schedules will be as follows:

1. The seven current parachute harnesses now at El Centro will be modified to locate the drogue release in the correct position. The dummy drops are then to continue using these modified packs at El Centro on January 22.
2. [] is to make up two new harnesses and packs to the strength required to accept the relocated drogue chute loads. One of these packs is to be available for cockpit checkout on February 2. They will then be used at El Centro for drop tower strength tests.
3. The production timers are still being held up at [] pending the completion of drop tests to verify that the present altitude settings are correct.

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4. Production timers are now undergoing qualification tests at Wright Field. An end target date is February 12.

I felt that this meeting was necessary and very productive. The primary issue is the positioning of the drogue chute releases on the harness to eliminate any possibility of helmet interference of ejection. This was resolved to everyone's satisfaction.

Sincerely,

STATINTL

EFM/kb

cc:

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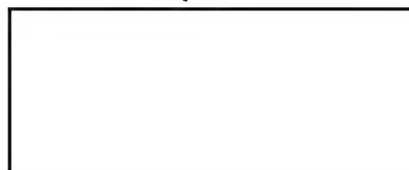
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EFM/kb

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cc:



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1-11-62

THE PROBLEM:

FIRST STAGE SUSPENSION

FITTINGS EXERT PRESSURE ON NECK
RING IMMOBILIZING THE HEAD
AND SUBJECTING NECK TO STRESS.





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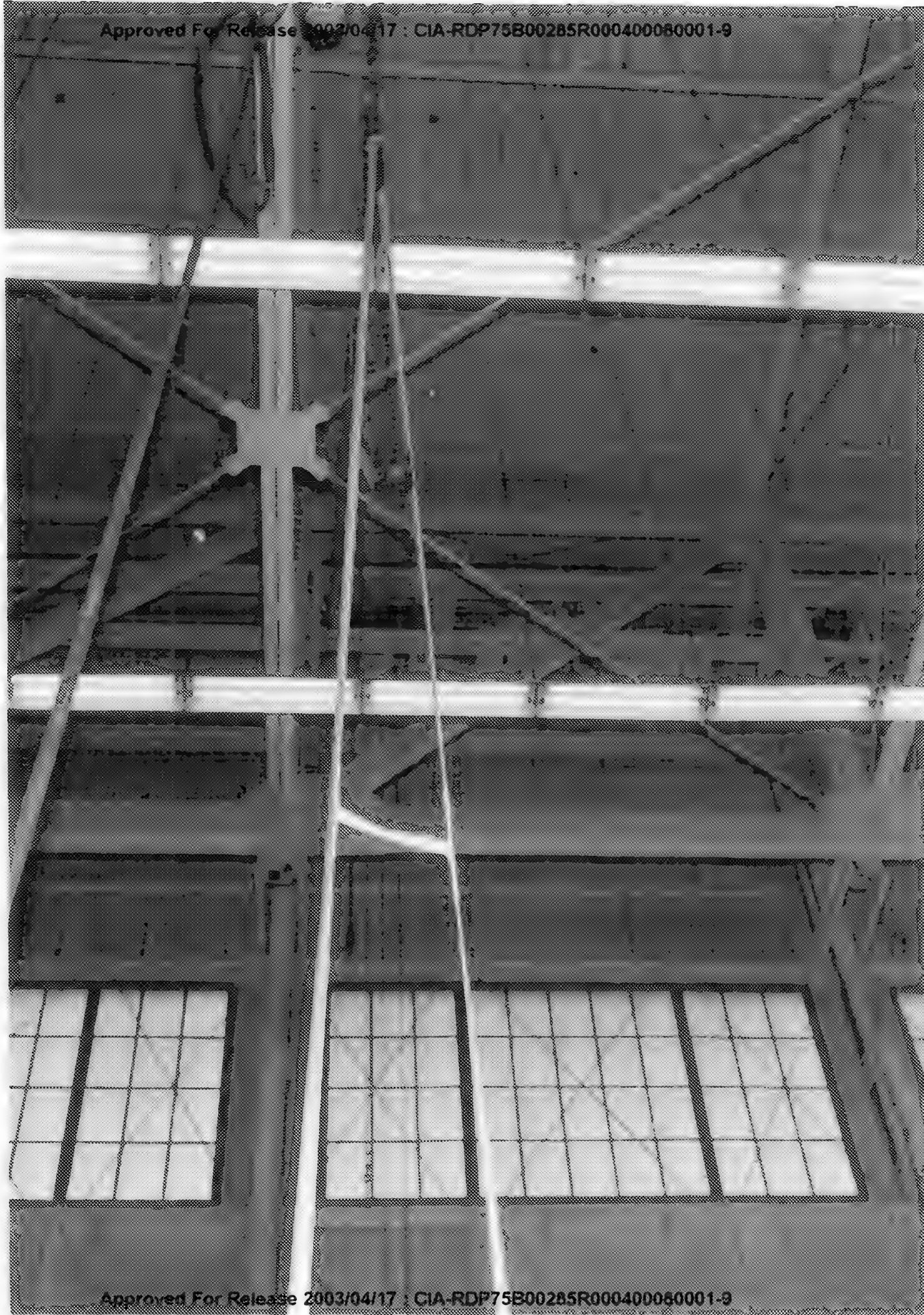


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FIRST STAGE SUSPENSION FITTINGS:

STOWAGE OF FITTINGS UNDERNEATH
NECK RING



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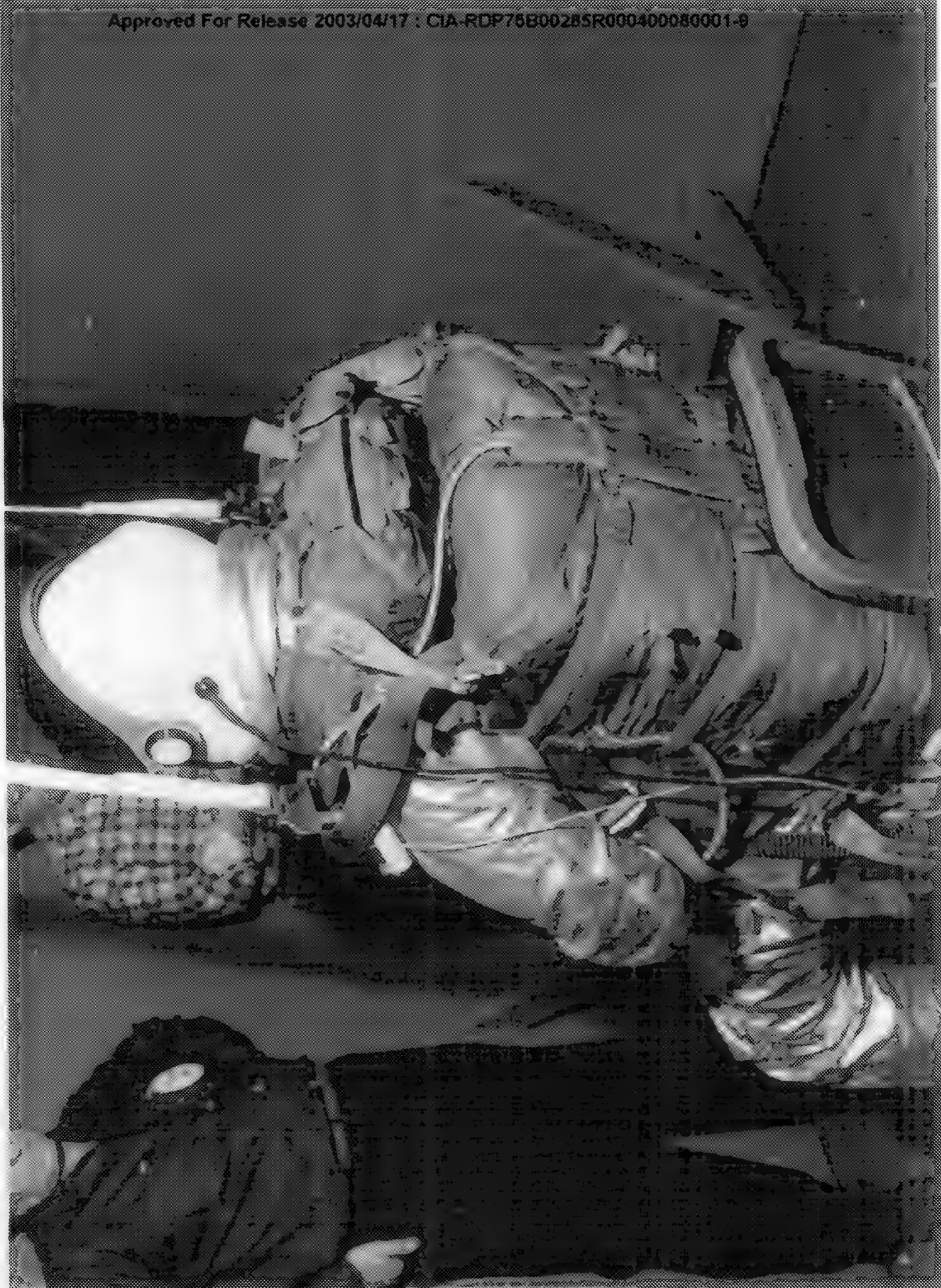
a) NECK SPREADER COLLAR ADDED

b) FIRST STAGE FITTINGS MOVED AFT
1 1/2 INCHES AND OUTBOARD ON SEPARATE SUSPENSION
WEB

COMMENTS:

OBJECTIONABLE NECK PRESSURE
AND MOBILITY PROBLEMS IN SEAT





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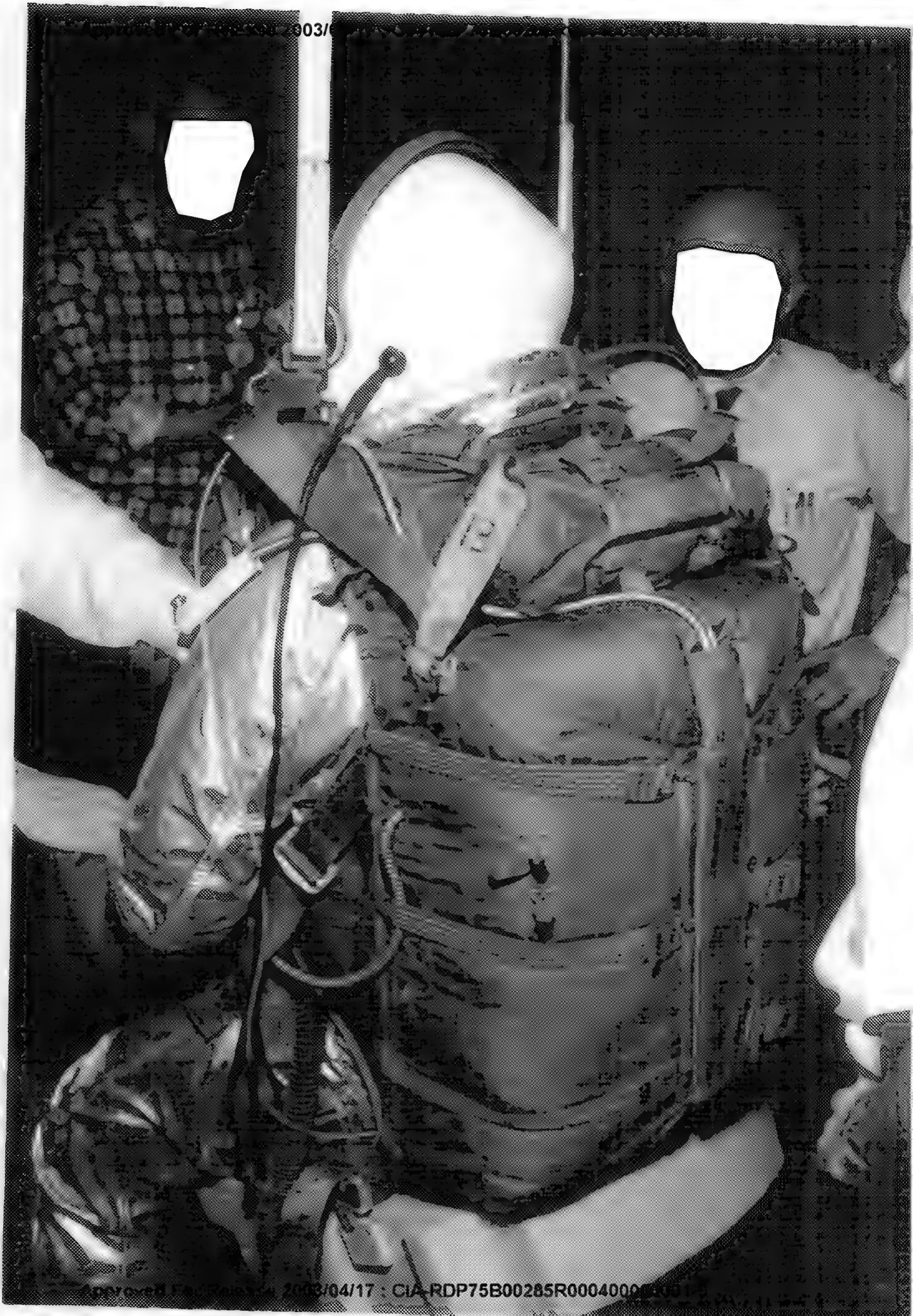


UNCOMFORTABLE NECK PRESSURE

2003/04/17

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PRESSURIZED

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PRESSURIZED

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RESTRICTED MOBILITY

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a) FIRST STAGE FITTINGS MOVED AFT $1\frac{1}{2}$ "
AND OUTBOARD ON SEPARATE SUSPENSION
WEBS.

COMMENTS:

a) IMPROVED MOBILITY IN SEAT OVER
NECK SPREADER COLLAR

4) FIRST STAGE SUSPENSION FITTINGS,
ALTHOUGH IMPROVED, STILL INTERFERE
WITH HELMET & NECK RING

STAT

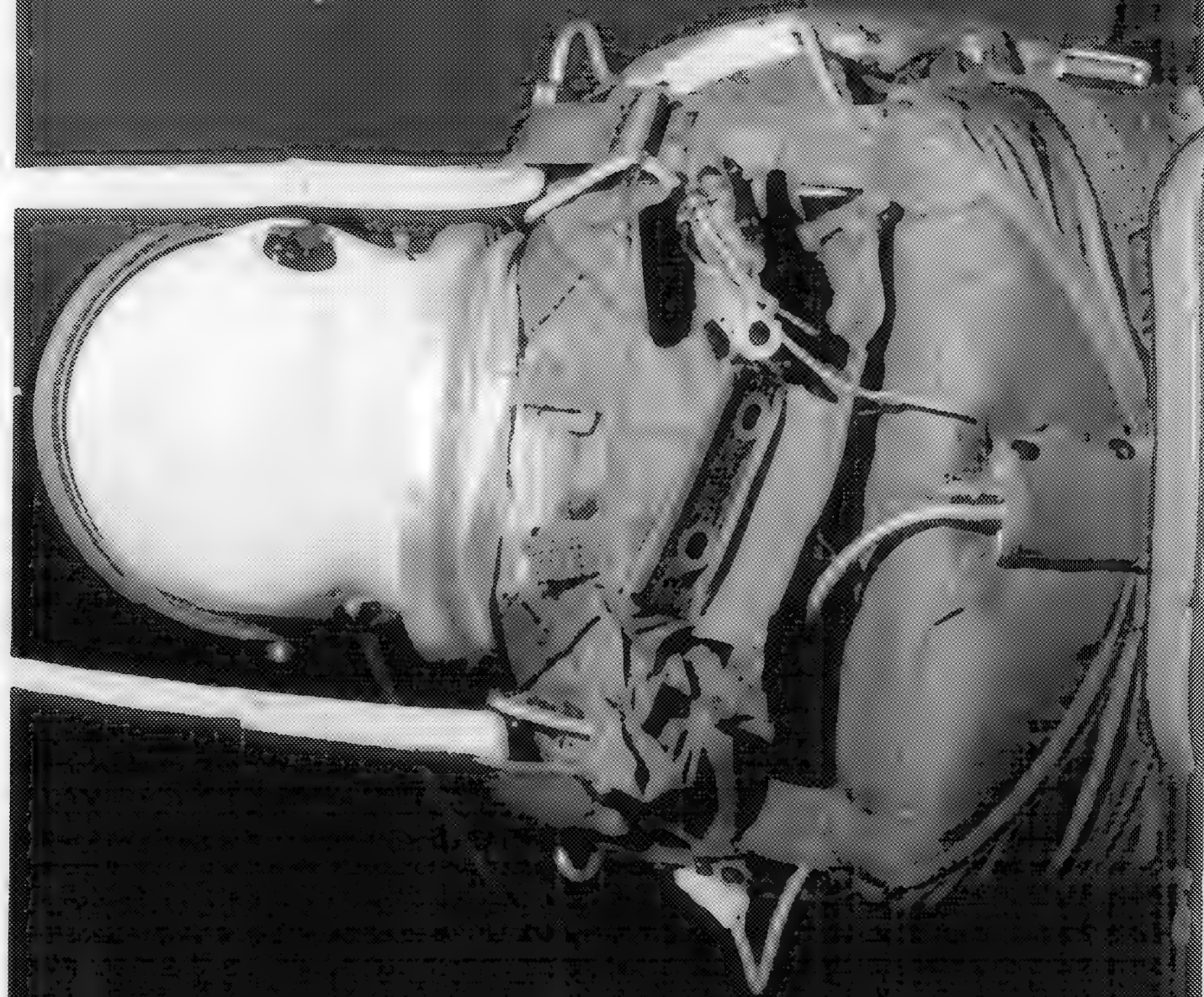
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HELMET INTERFERENCE OBVIOUS



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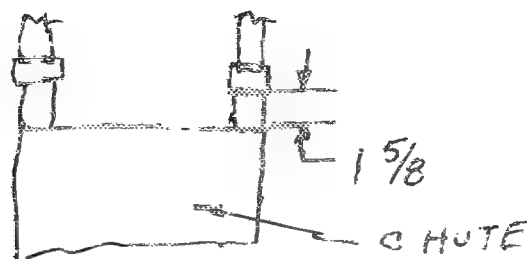
CONSIDERED ~~MOVING~~ ROTATING FIRST STAGE
FITTINGS 90° TO CLEAR NECK RING AND
HELMET



[] WITHOUT SUIT - NECK SPREADER COLLAR

a) KIT WEIGHTED 40[#]

b) SUSPENSION 1ST STAGE



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COMMENTS BY []

a) COMPLAINS ABOUT ^{CHEST} ~~NECK~~ PRESSURE -
CONSIDERS HIGH

b) CONSIDERS GROIN COMFORT OK

c) SUSPENSION LINE THRU C.G. APPEARS OK.
FOR COMFORT

STAT



STAT





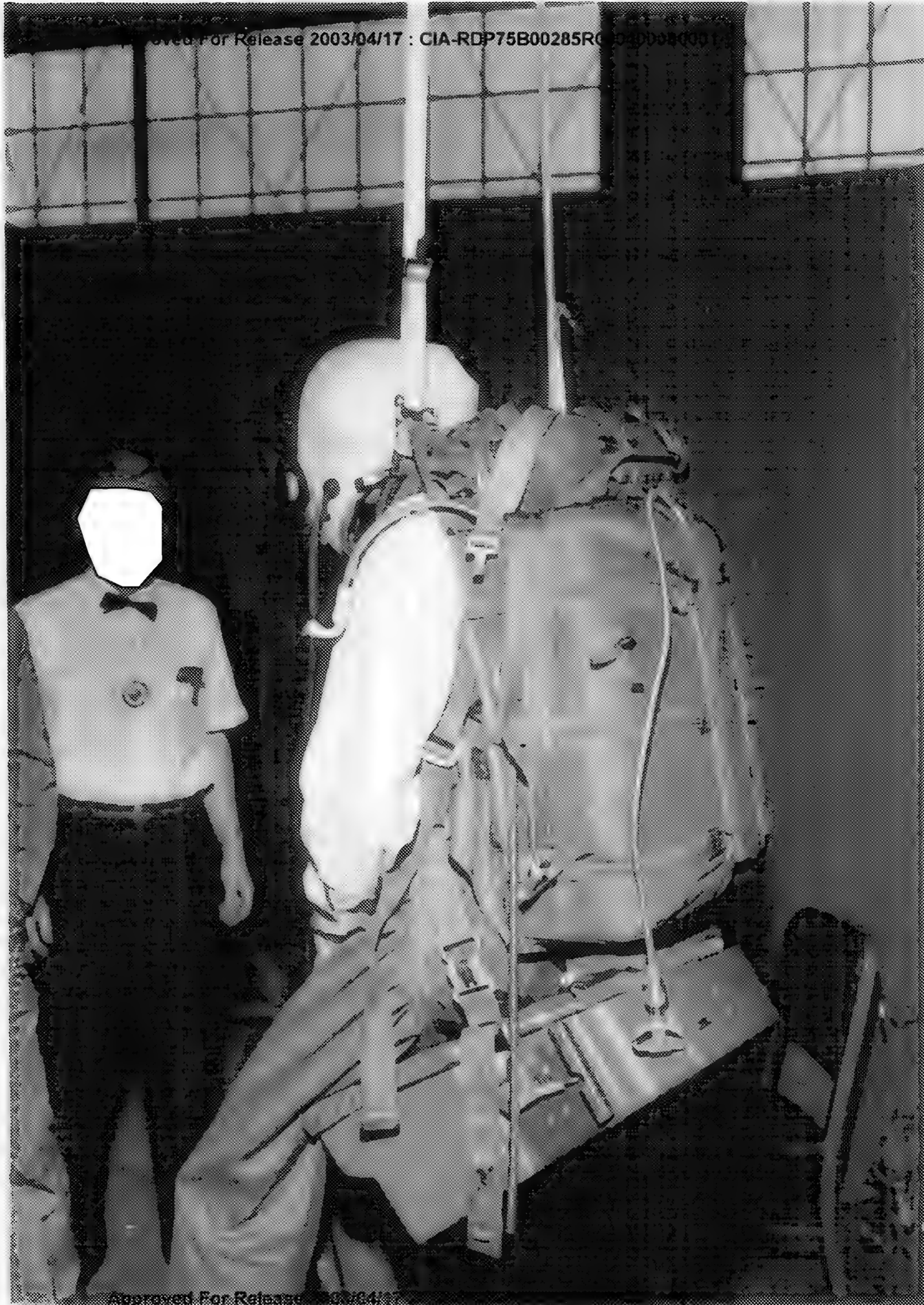
STATINTL

SAME RIG AS

COMMENTS:

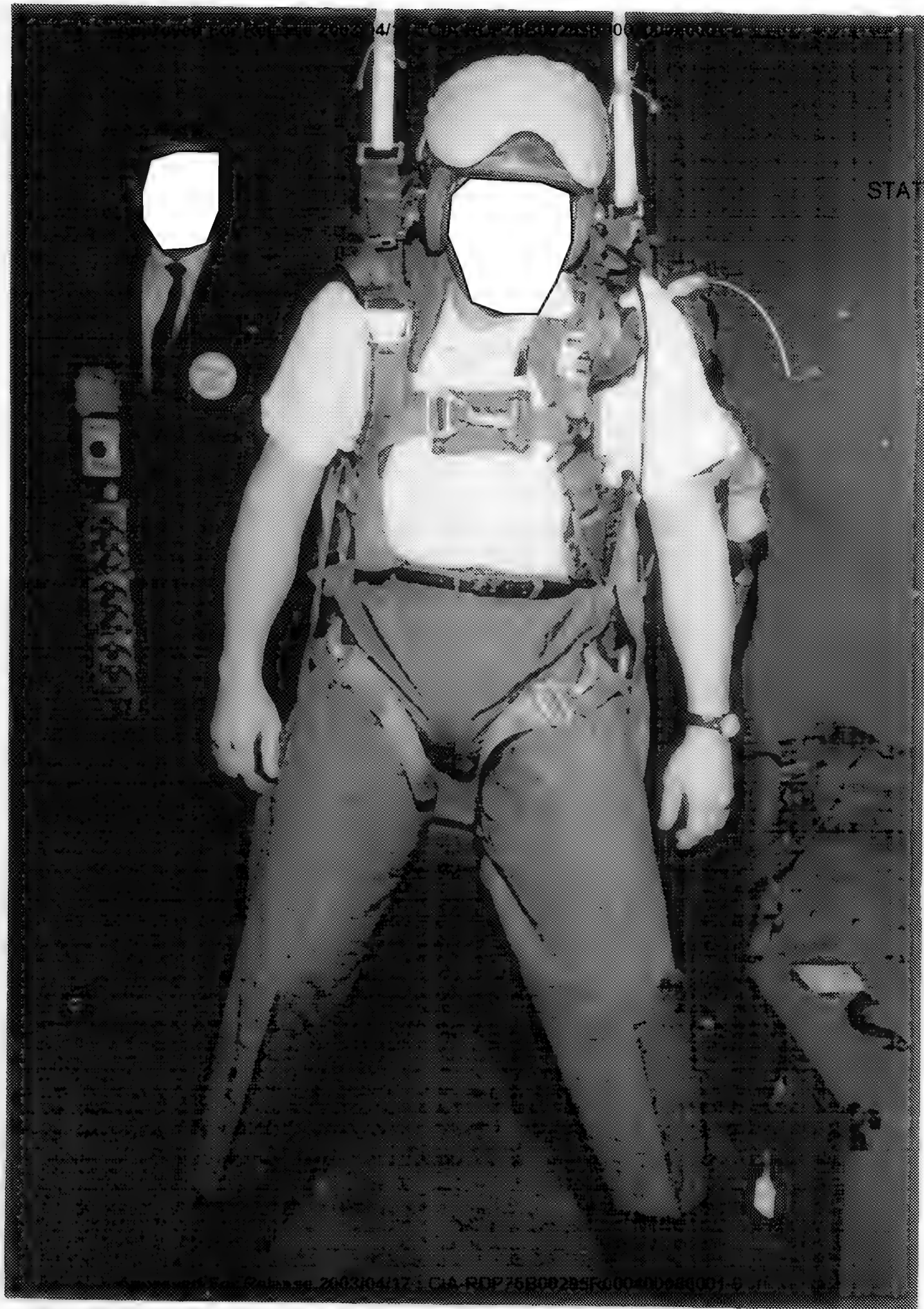
- a) CLEARS HELMET OK
- b) COMPLAINS ABOUT COMFORT
AT LEGS AND NECK
- c) PRESSURE FROM NECK COLLAR

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1. [REDACTED] WITH CONVENTIONAL HELMET
2. CLEARANCE OK. , NO OBVIOUS PROBLEMS

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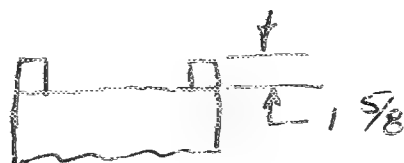
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a) SUIT AND NECK-SPREADER COLLAR

A) SUSPENSION AFT POSITION



COMMENTS:

a) CONSIDERS SUSPENSION ACCEPTABLE

b) LEG AND GROIN OK

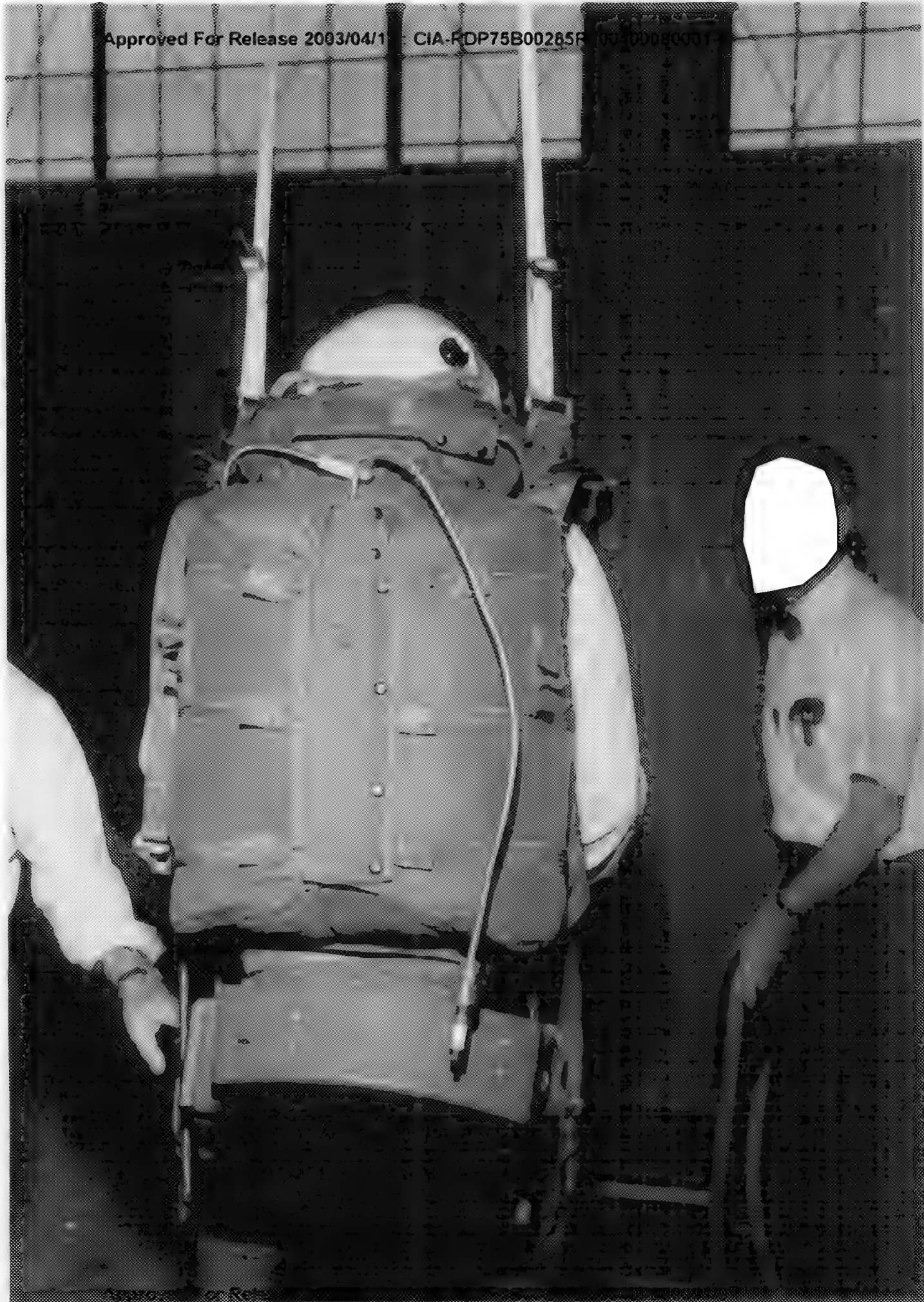
c) NO NECK PRESSURES

d) CHEST PRESSURES APPEAR OBVIOUS
FROM MANNER OF SUSPENSION

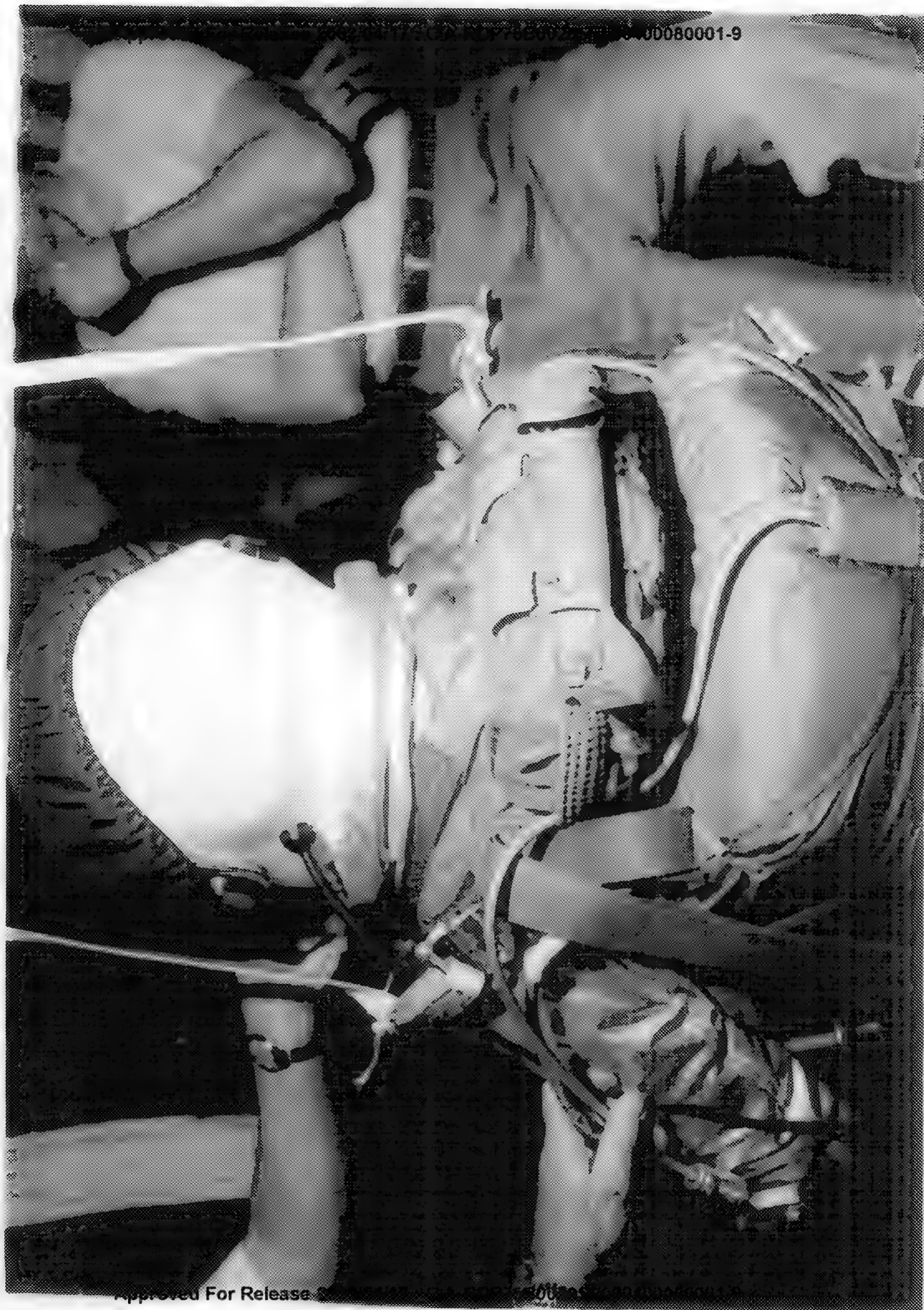
STAT



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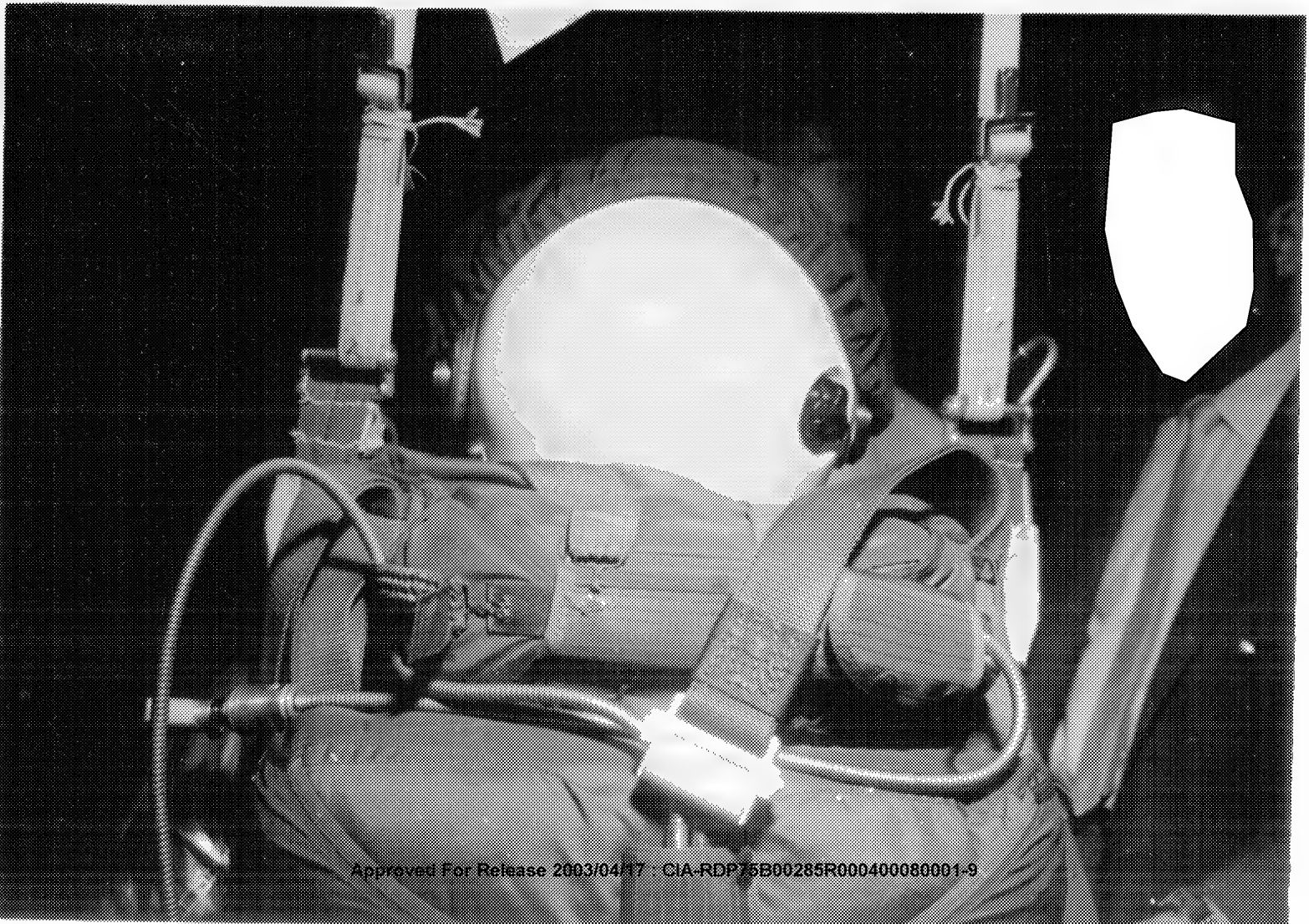




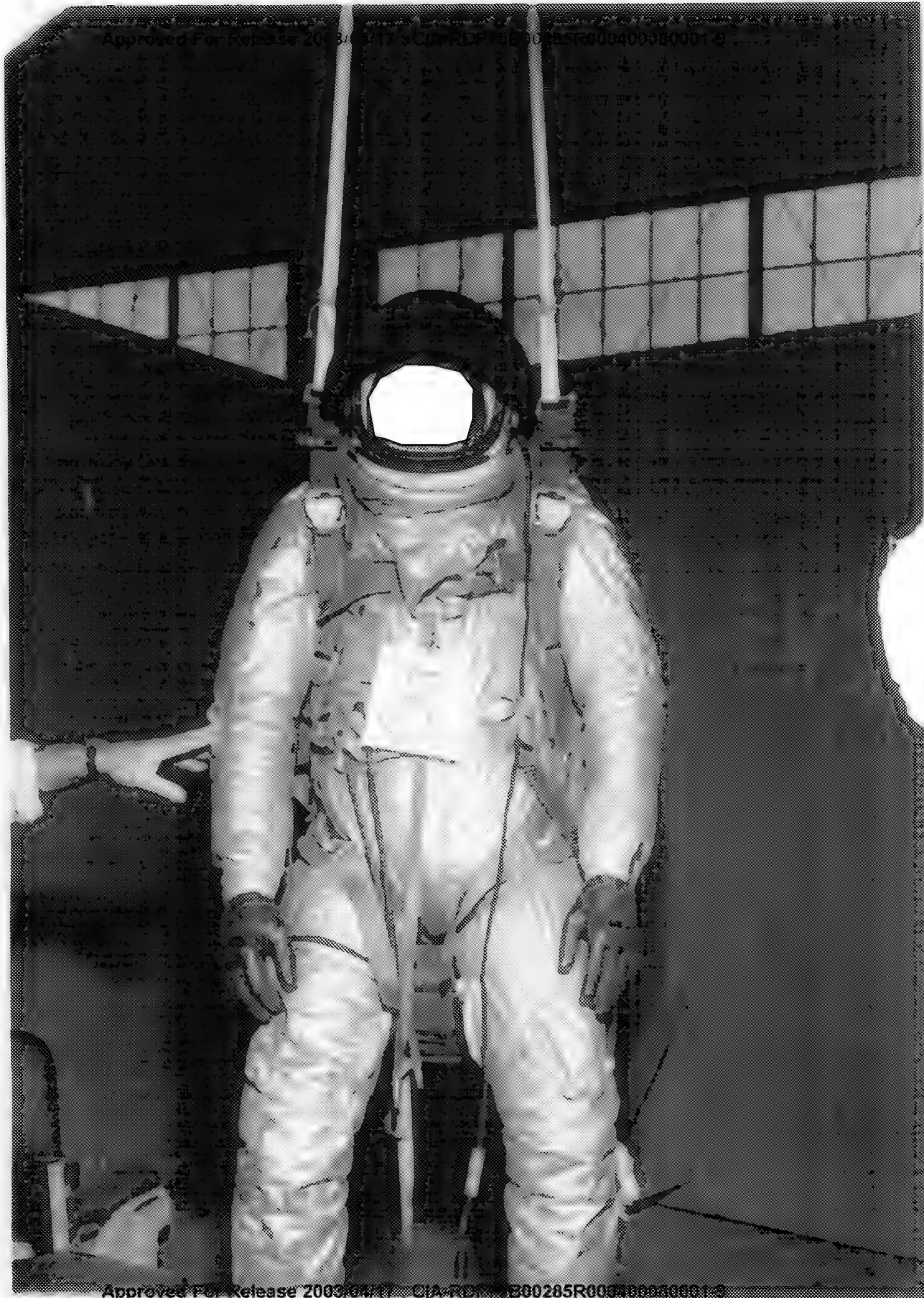
Approved For Release 2001/02/01 : CIA-RDP80-0080001-9

Approved For Release 2003/04/17 : CIA-RDP75B00285R000400080001-9

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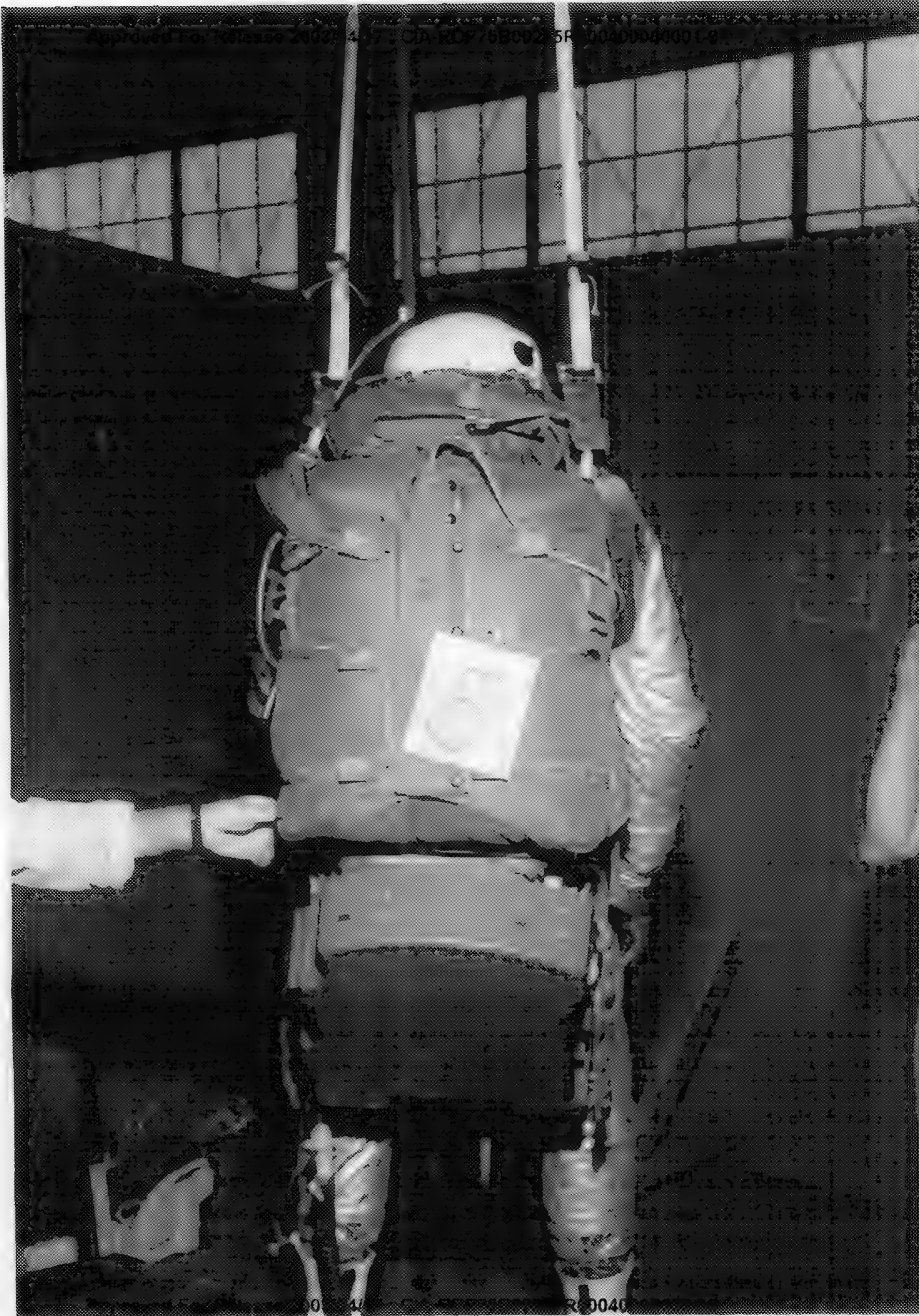
- a) SAME AS #4 WITH 5" F.W'D
POINT 1" F.W'D
- b) ~~HIS~~ NECK COLLAR PLACED OUTSIDE

COMMENTS:

- a) FEELS MORE COMFORTABLE THAN #4
- b) CHEST PRESSURES LIGHTER THAN #4
- c) NO NECK PRESSURES

STAT

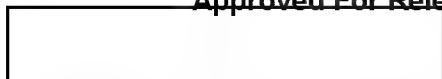




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1-18-62



IN RIG WITHOUT
NECK COLLAR SPREADER IN FIN'D 1ST STAGE.
SUSPENSION POINT.

COMMENTS:

a) COMFORT BETTER THAN #5

b) SEEMS GOOD - NO CRITICISMS.

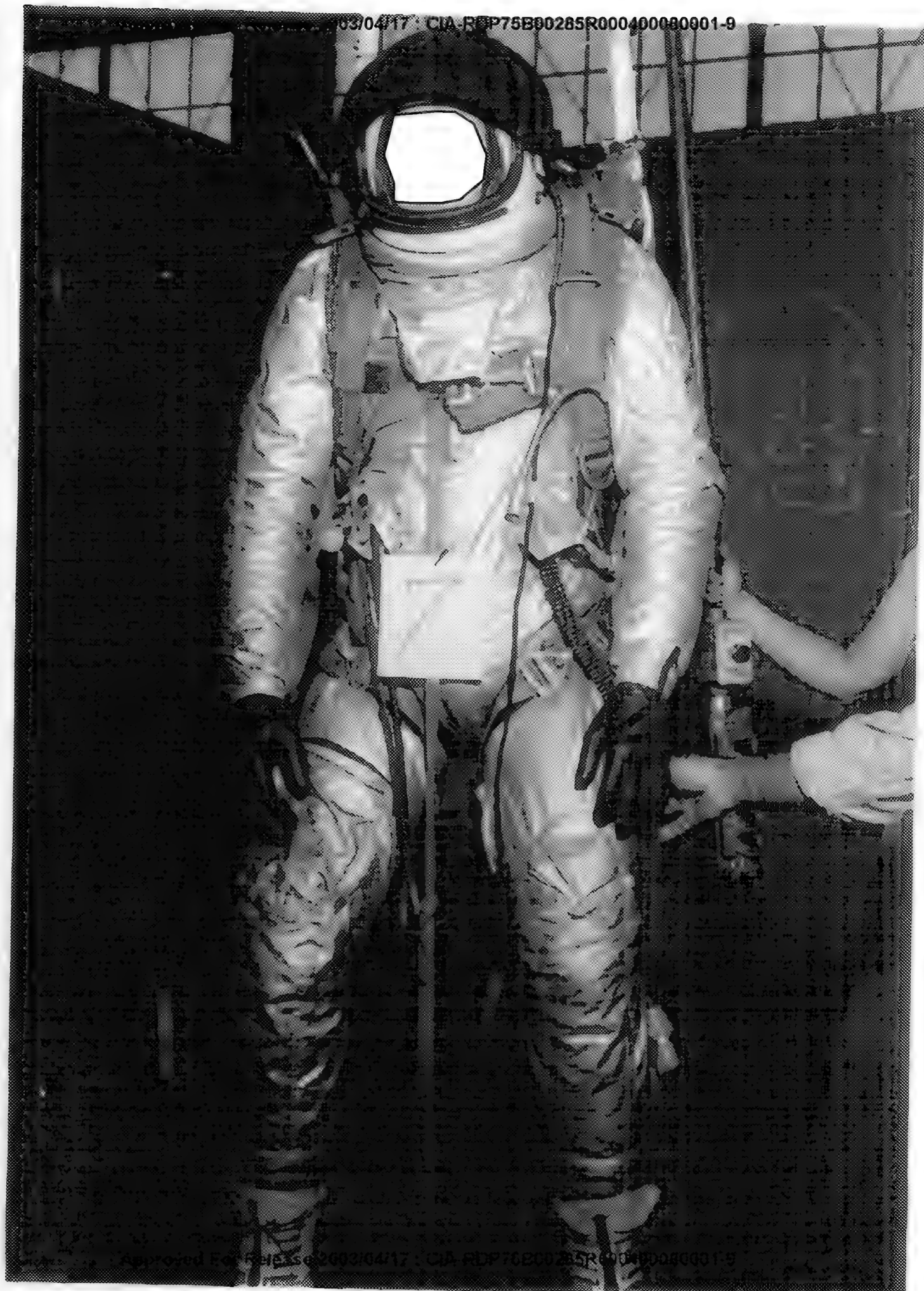
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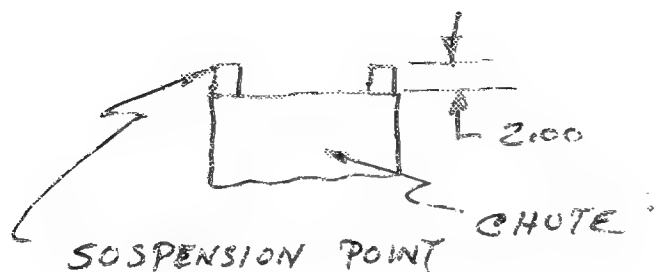


STAT

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2. SUSPENSION 1ST STAGE IN AFT POSITION:



a) No OBJECTION ABLE CHEST PRESSURE

h) ... LEG ...

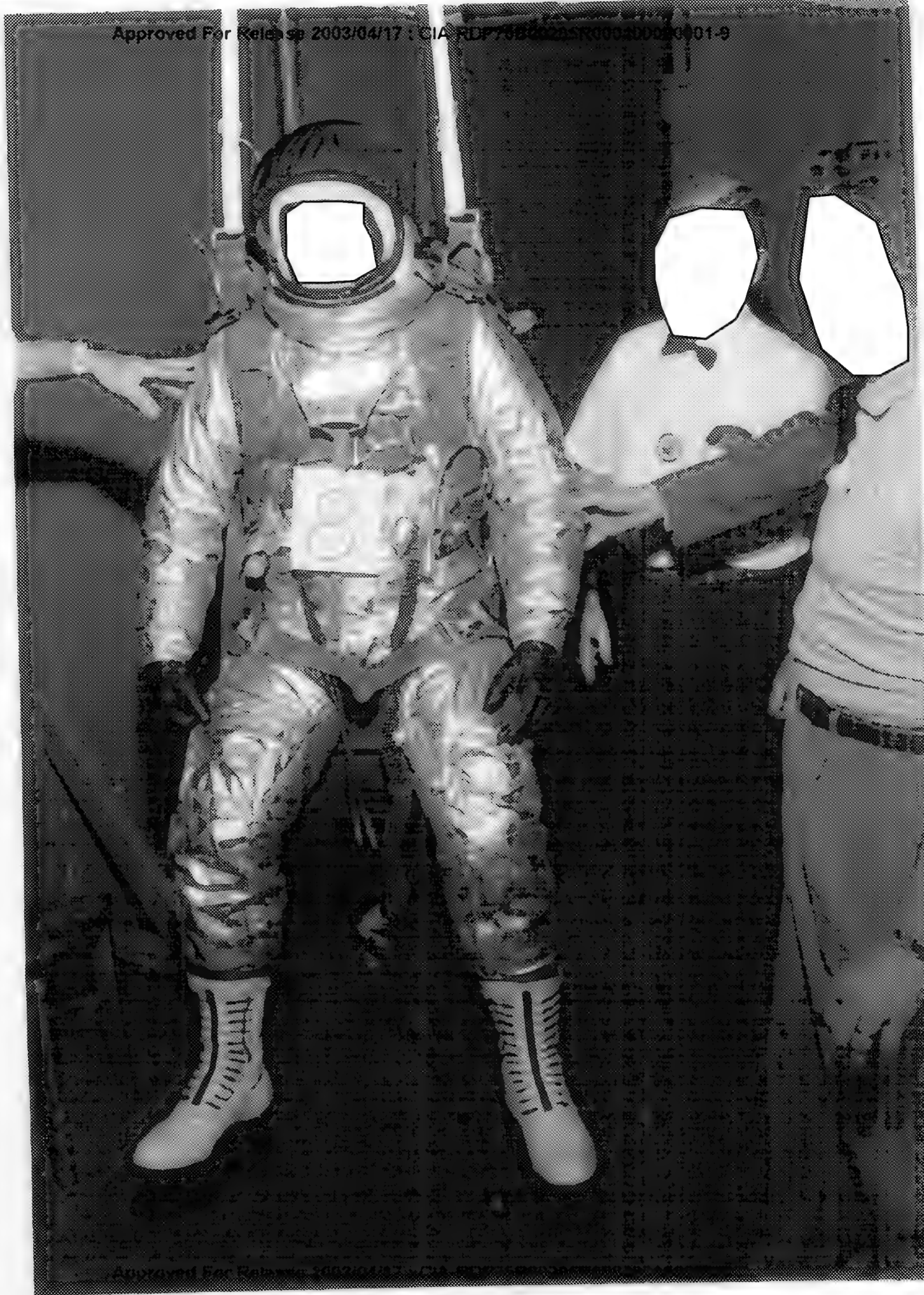
c) .. NECK



STAT



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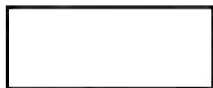


#8



1. RIG WITHOUT NECK SPREADER COLLAR
2. SUSPENSION POINT SAME AS #7

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COMMENTS:

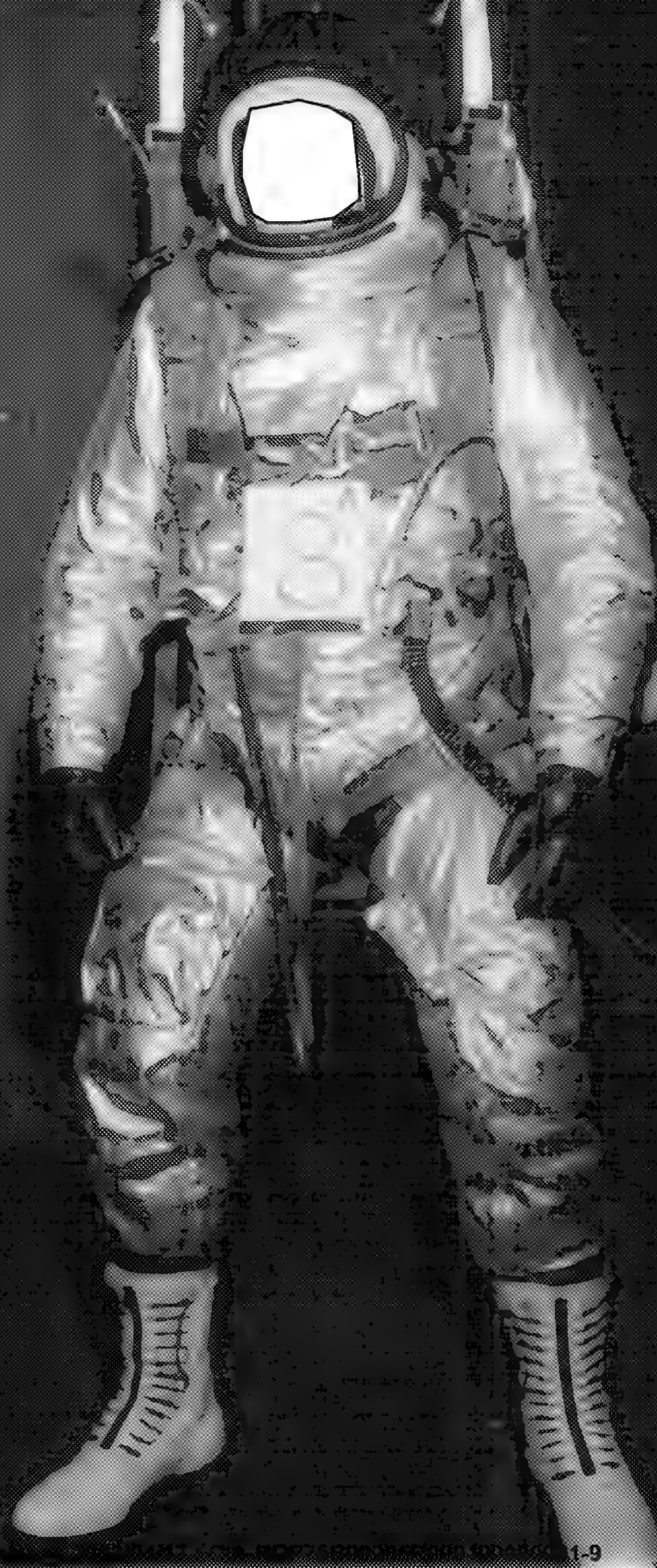
- a) "I LIKE THIS ONE. BEST ONE SO FAR."

STAT





STAT





1. SAME AS #8

2. SHOWS SLIPPAGE AFTER
SEVERAL JUMPS

STAT

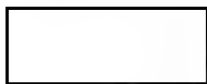




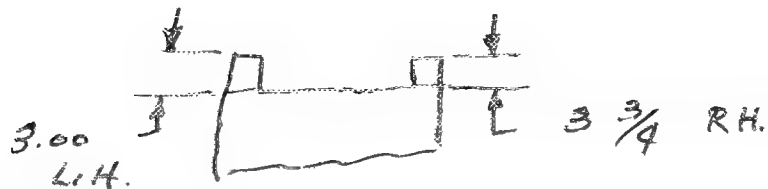
STAT
STAT
STAT



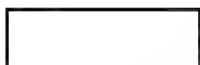
#9



1. SAME RIG ~~DIFF~~ AS #8 WITH
1ST STAGE SUSPENSION FIW'D



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COMMENTS:

a) FEELS ABOUT SAME AS #8

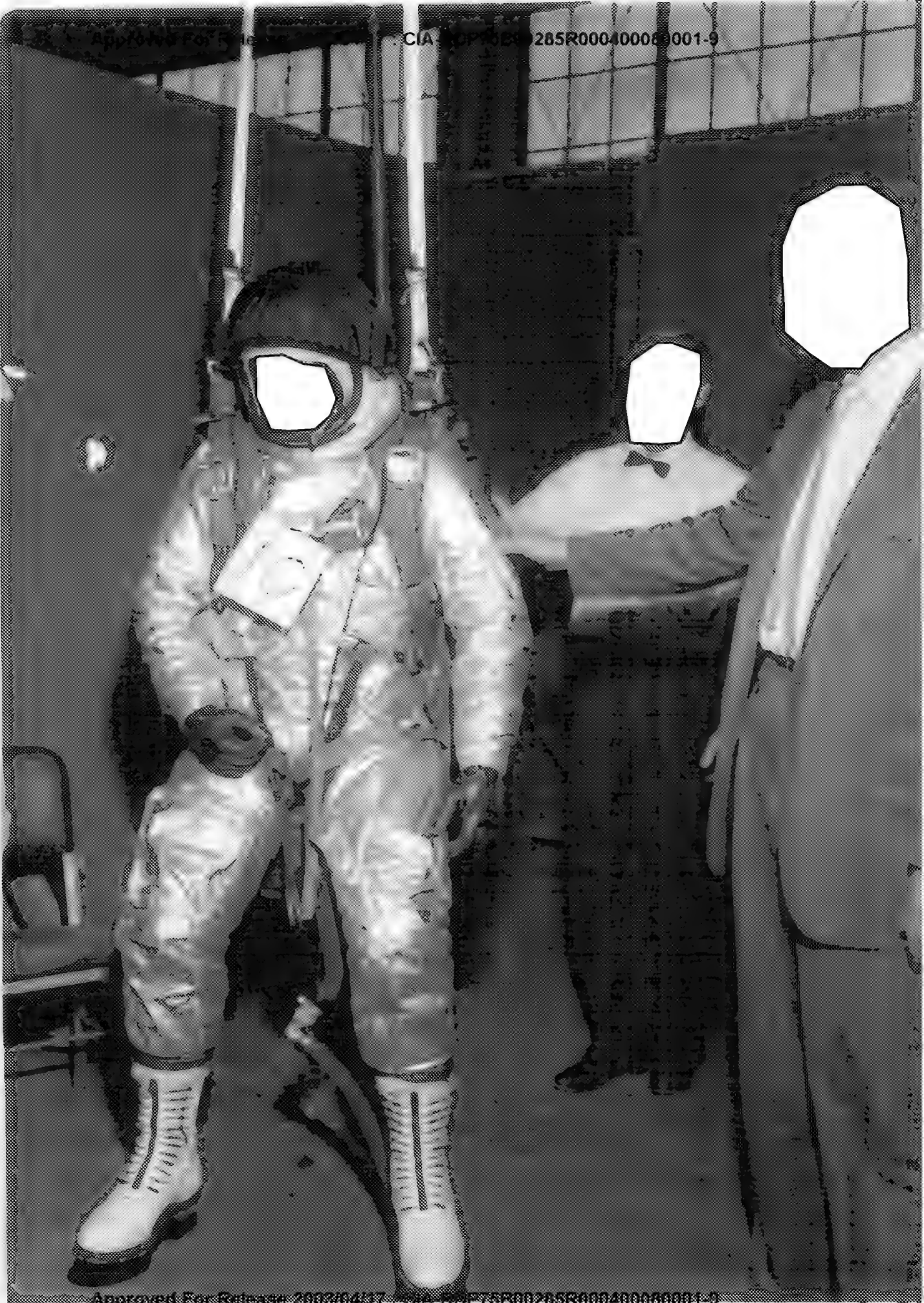




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Q) RIG WITH NECK SPREADER

A) SUSPENSION IN FORWARD POSITION



STATINTL

COMMENTS :

Q) SUFFERING

A) STRAIN ON NECK

DOESN'T WANT TO JUMP -
HURTS TOO MUCH

STAT



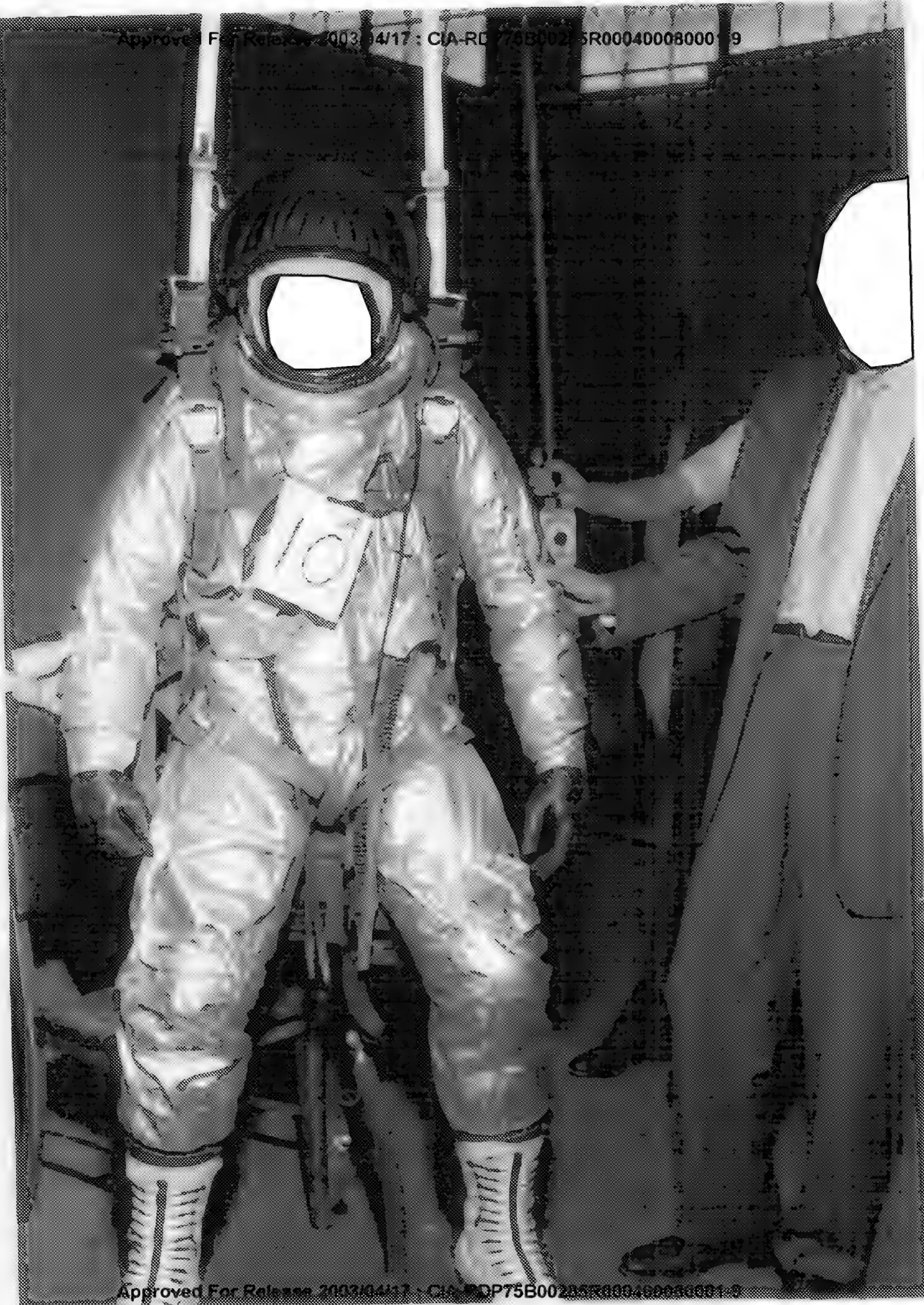
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10 A.

SAME RIG AS #10

a) COLLAR OUTSIDE NECK RING.

COMMENTS:

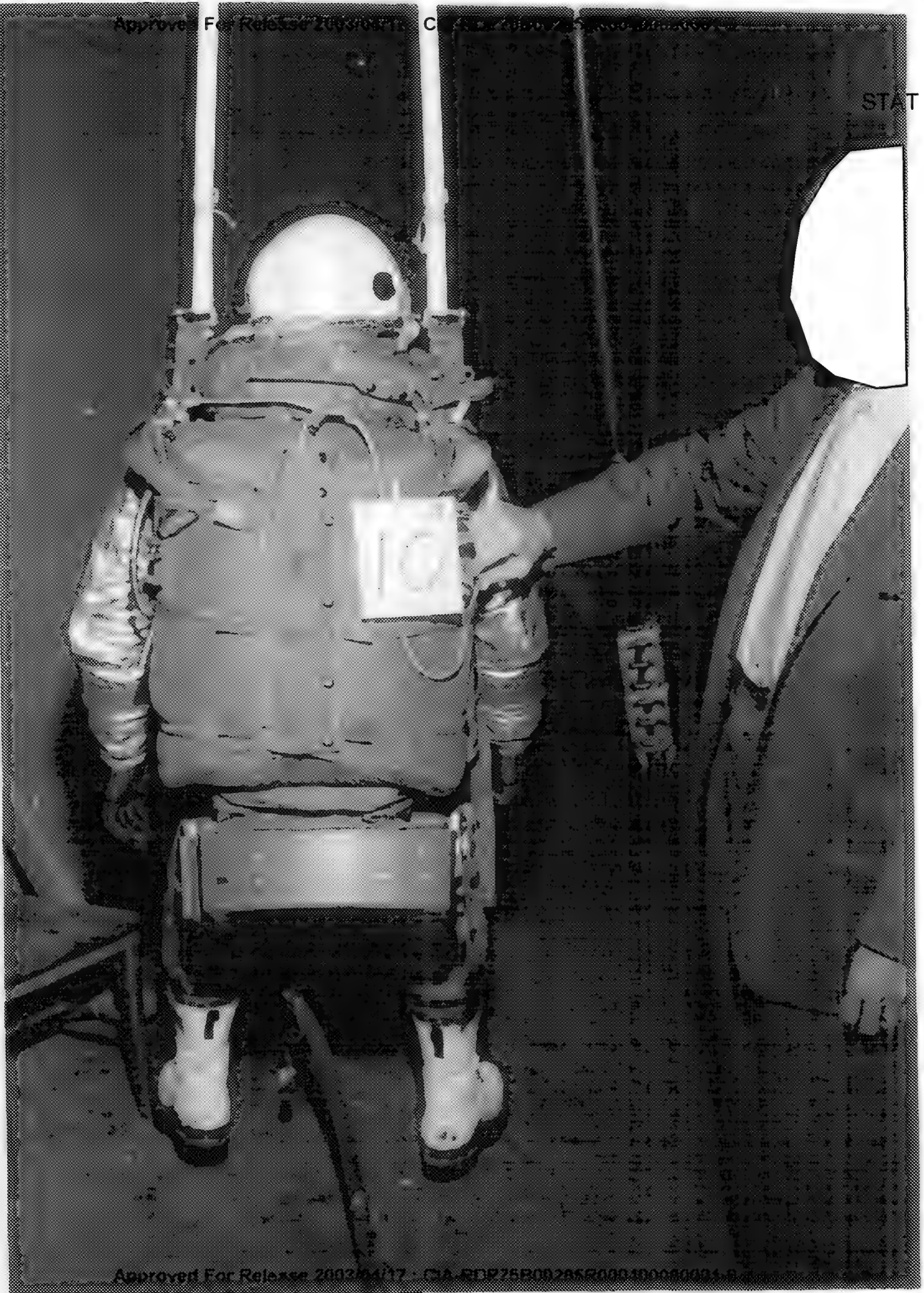
a) STILL UNCOMFORTABLE

b) DEFINITELY UNDESIRABLE

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STAT



- [REDACTED]
- a) SAME RIG AS NO. 10.
 - b) SAME SUSPENSION POINTS
 - c) REMOVED NECK COLLAR

COMMENTS:

STATINTL

- a) [REDACTED] CONSIDERS MOBILITY BETTER
WITH COLLAR REMOVED - EVEN BETTER
THAN OTHER RIG IN #9 & #8

STATINTL

- b) [REDACTED] LIKES SUSPENSION BETTER
THAN #9

STATINTL

- c) [REDACTED] CONSIDERS IT GOOD

STAT

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STAT





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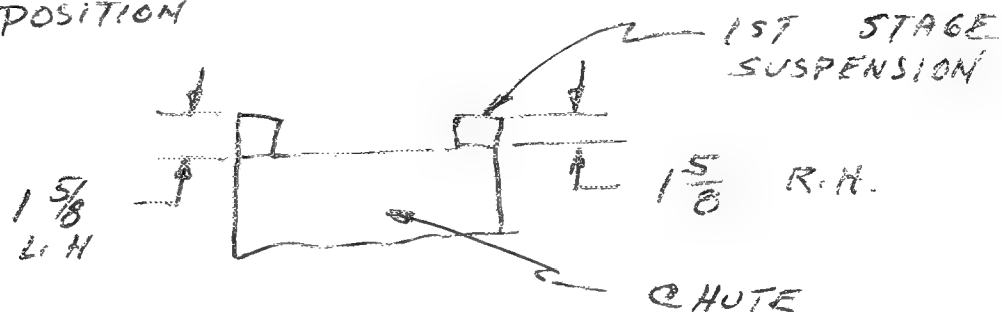
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#12

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- a) SAME RIG AS #11
- b) SUSPENSION POINT IN AFT POSITION



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COMMENTS:

- a) CONSIDERS MORE COMFORTABLE IN CHEST
- b) MORE COMFORTABLE ALL AROUND

THIS IS RIG THAT WAS CONSIDERED
ACCEPTABLE AND REVISIONS ARE BEING MADE
TO THIS CONFIGURATION.

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#12

1-18-62

MOBILITY ~~STILL~~ ~~IMPROVED~~ ~~DESIRED~~ ~~STILL~~ ~~IMPROVED~~ ~~DESIRED~~

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a) MOBILITY IMPROVED BUT STILL
MORE IMPROVEMENT DESIRED



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MOBILITY CHECK WHILE PRESSURIZED

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a) PREFERS TO BE PRESSURIZED - REMOVES
HARD SPOTS

STAT
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#13

a) HEAD MOBILITY JUST A LITTLE
BETTER - VERY LITTLE DIFFERENCE

b) PRESSURIZED - ARM MOBILITY
REDUCED BUT NOT CRITICAL
HAS DIFFICULTY SEEING DOWN
AND FROM SIDE TO SIDE UNDER
PRESSURE

c) WITH HELMET STRAP PULLED
DOWN MOBILITY IMPROVED



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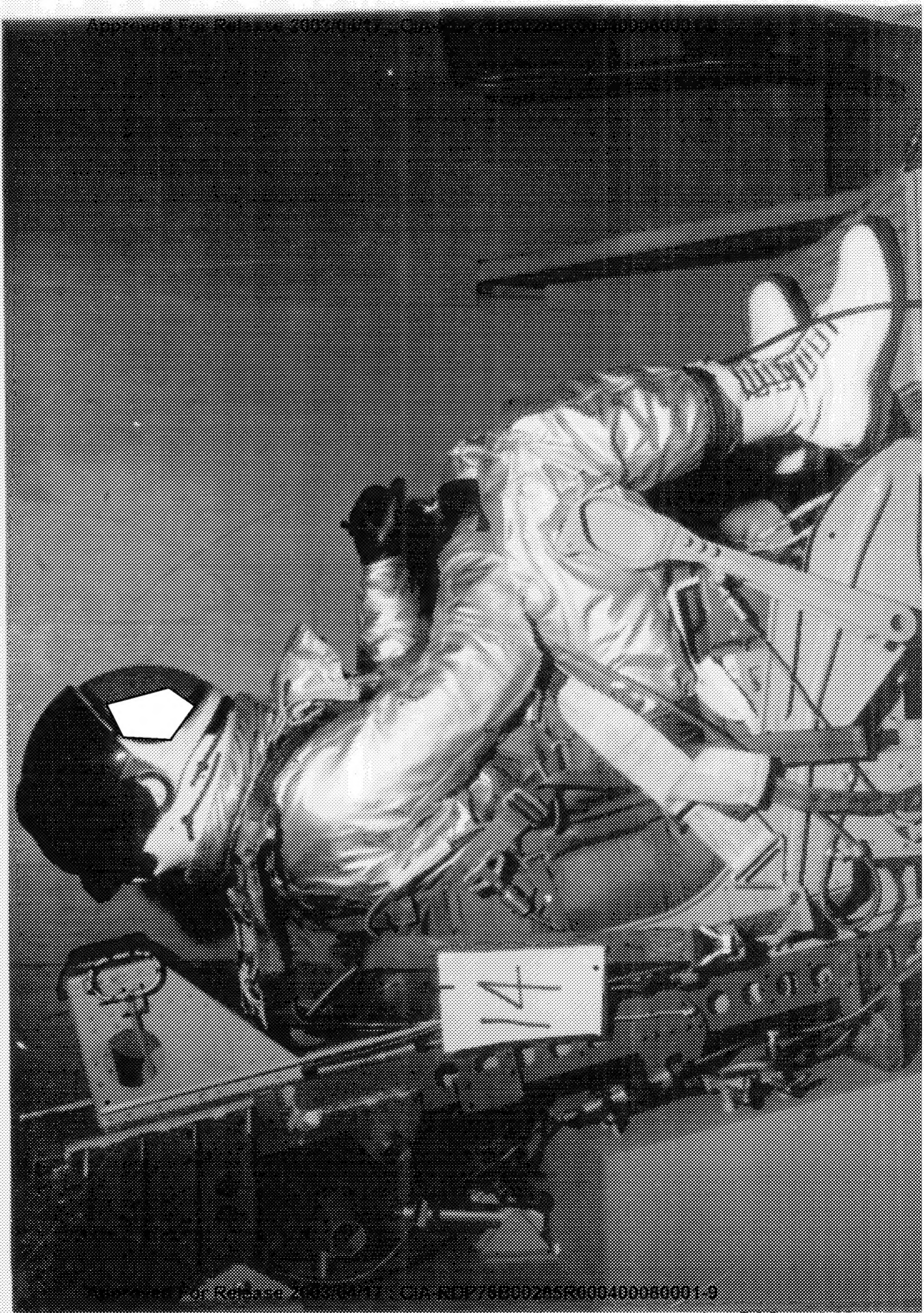
13 A

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UNPRESSURIZED

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STAT



KIT & CHUTE REPRESENTATIVE
OF FINAL CONFIGURATION

FULL PRESSURE SUIT 1962
OXCART